



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF APPEALS

Appellant: Nicholas Paul MacMillan et al. )

Serial No: 10/765,953 )

Filed: January 29, 2004 )

For: VALVES AND SUCTION  
CATHETER ASSEMBLIES )

Attorney Docket: 0119/0032

Appeal No:

**APPELLANT'S BRIEF ON EX PARTE APPEAL**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This is a brief for appealing the final rejecting of pending claims 2-4, 6-11, 16-18 and 24 of the above-identified application.

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## TABLE OF CONTENTS

	<u>Page</u>
<u>REAL PARTY IN INTEREST</u> .....	3
<u>RELATED APPEALS AND INTERFERENCES</u> .....	4
<u>STATUS OF CLAIMS</u> .....	5
<u>STATUS OF AMENDMENTS</u> .....	6
<u>SUMMARY OF CLAIMED SUBJECT MATTER</u> .....	7
<u>GROUND S OF REJECTION TO BE REVIEWED ON APPEAL</u> .....	10
<u>ARGUMENT</u> .....	11
<u>CLAIMS APPENDIX</u> .....	16
<u>EVIDENCE APPENDIX</u> .....	18
<u>RELATED PROCEEDINGS APPENDIX</u> .....	19

**REAL PARTY IN INTEREST**

The real party in interest of the subject application is Smiths Group PLC to whom the inventors assigned the invention per an assignment recorded on January 29, 2004 on Reel 014936, Frame 0725 at the Assignment Branch of the U.S. Patent and Trademark Office.

### **RELATED APPEALS AND INTERFERENCES**

The assignee has two co-pending applications that are currently on appeal. They are 10/196,151 and 10/803,882. However, both of those cases are directed to the construction of a catheter and are therefore are not believed to be related to the subject matter being appealed herein. Accordingly, as far as is known, it is believed that there are no appeals or interferences that relate to, directly affected or be directly affected by, or have a bearing on the Board's decision on the pending appeal.

### **STATUS OF CLAIMS**

Claims 2-4, 6-11, 16-18 and 24 are pending in the application.

Claims 1, 5, 12-15, 19-23 and 25-26 have been canceled.

Claims 2-4, 6-11, 16-18 and 24, reproduced in the Claims Appendix, stand rejected and are being appealed herein.

### **STATUS OF AMENDMENTS**

An amendment was filed on April 28, 2009 subsequent to the office action dated December 16, 2008 finally rejected the pending claims. The amendment was filed to correct the preamble of dependent claims 3, 8 and 10-11, so that those claims would have the same preamble as all of the other dependent claims.

### **SUMMARY OF CLAIMED SUBJECT MATTER**

Claim 24, the sole independent claim, recites a suction catheter assembly that comprises a suction catheter (20) and a valve (30) that controls the flow along the suction catheter. The valve comprises a housing (31) defining a first bore (37) in communication with the suction catheter (20) and a second bore (38) that extends an outlet opening into the first bore through an aperture (4). The valve (30) further comprises a valve member (that may include seal sleeve 54, piston portion 52 and piston end portion 59) having a sealing surface (54) and slidable in alignment with the first bore (37) from a first position (shown in Figs. 2 and 3) where the sealing surface is on a side of the aperture (4) remote from the first bore (37) so as to allow unobstructed fluid flow from the suction catheter along the first bore (37) to the second bore (38) [page 9, lines 5-12]. The valve member is also slidable from the first position to a second position (shown in Fig. 4) on an opposite side of the aperture (4) to block the flow of fluid from the suction catheter between the first and second bores (37, 38) [page 8, line 17 to page 9, line 4]. The valve includes a rotatable locking member (70) operable to prevent the movement of the valve member (possible combination 54, 52 and 59). The locking member (70) is mounted on the housing (31) and has an external surface formation (76) [page 8, lines 7-8]. The locking member is rotatable between a first position (Fig. 2) in which the surface formation (76) is out of alignment with a part of the valve member and the valve member is free for sliding movement. The locking member is also rotatable to a second position (Fig. 4) where the surface formation (76) is in alignment with the part of the valve member so as to hinder movement of the valve member [page 8, lines 8-16].

The suction catheter assembly of the instant invention therefore comprises a valve (30) that has a valve member (54, 52 and 59) slidable within a bore (37) that is connected to a second bore (38). And depending on the positioning of the valve member, the first and second bores may be in fluid communication with each other so as to allow unobstructed fluid flow from the suction catheter along the first bore and the second bore. The valve of the instant invention further has a rotatable locking member (70) that has a surface formation that, depending on its rotated position, can either allow or prevent the sliding movement of the valve member.

Claim 2 depends from claim 24 and defines the suction valve assembly to include a spring (64) that urges the valve member to the second position (Fig. 4) [page 8, lines 17-18].

Claim 4 depends from claim 24 and defines the housing to have a tapered sealing formation (39, 40) and that the valve member is arranged to engage the sealing formation in the second position (Fig. 4) [page 6, lines 7-9].

Claim 6 depends from claim 24 and defines the cylindrical sleeve (54) of the suction valve assembly to have an outwardly projecting annular flange (56) that makes a wiping seal with bore (37) in the housing [page 6, line 19 to page 7, line 3].

Claim 7 depends from claim 24 and defines the second bore (38) of the suction valve assembly to incline at an angle relative to the first bore (37) [Fig. 3, page 2, lines 15-18; page 5, lines 14-16]. The angle is defined to be substantially at 45° in claim 8 [page 2, lines 17-18].

Claim 9 depends from claim 24 and defines the housing (31) to have a channel (47) that extends along an outer surface [page 6, lines 11-15], and that the valve member includes a plate member (62) arranged for manual engagement and slidably located in the channel [page 7, lines 7-14].

Claim 10 depends from claim 9 and defines the housing (31) to include two walls (48, 49) sandwiching the channel so that the plate member (62) is protected by the walls [Figs. 2 and 4; page 6, lines 11-16; page 7, lines 13-14].

Claim 11 depends from claim 10 and further defines the walls (48, 49) to have an upper surface that is curved such that the height of the walls varies along the length of the valve [Figs. 2-4; page 2, line 21 to page 3, line 1; page 6, lines 13-16].

Claim 16 depends from claim 14 and defines the housing (31) to have two walls (48, 49) that extend longitudinally, and that the locking member (70) includes two projections (76) that form a continuation of the two walls when the locking member is in a position to enable movement of the valve member [Fig. 2; page 3, lines 5-7; page 8, lines 7-8].

Claim 17 depends from claim 24 and defines the housing (31) to have a sealing formation (57, 39, 4), and the locking member (70) is arranged to displace the valve member by a short distance toward the sealing formation when the locking member is



moved to its locking position to thereby enhance the seal with the sealing formation [Fig. 4, page 8, line 17 to page 9, line 4].

Claim 18 depends from claim 24 and defines the housing (31) of the suction valve assembly to be a transparent material [page 5, lines 14-16].

**GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

- I. Claims 2-4, 6-8, 16-17 and 24 stand rejected under 35 U.S.C. 102(b) as being anticipated by Hanson (US 5,919,174).
- II. Claim 9 stands rejected under 35 U.S.C. 103 as being obvious over Hanson in view of Decloux et al. (US 5,320,328).
- III. Claims 10-11 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Hanson in view of Decloux and further in view of Steigerwald (US 3,828,982).
- IV. Claim 18 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Hanson.

## **ARGUMENT**

### **I. Anticipation rejection of claims 2-4, 6-8, 16-17 and 24 under Hanson (US 5,919,174)**

#### **Independent claim 24**

As set forth in claim 24, the valve of the instant invention is slidable in alignment with a first bore (37) from a first position (Figs. 2 and 3) where the sealing surface (57 of the sealing sleeve 54 of the valve member) is on a side of the aperture (4) remote from the first bore (37) to allow unobstructed fluid flow from the suction catheter along the first bore (37) to the second bore (38). The valve member is also slidable in alignment with the first bore to a second position (Fig. 4) on an opposite side of the aperture (4) to block the flow of fluid from the suction catheter between the first and second bores. Thus, the valve member (which may include the sealing sleeve 54 mounted to the piston 52, per shown in Fig. 3), is slidable from one position where there is unobstructed suction to a position where the suction is blocked. The valve member of the instant invention therefore poses no impairment to the aperture (4) that connects the first and second bores (37, 38) when it is positioned "on the side of the aperture remote from the first bore". In other words, the valve member does not obstruct or block the fluid flow in the through passage when it is moved to its opened position.

The valve of the instant invention as set forth in claim 24, further includes a rotatable locking member (70) that is operable to prevent the movement of the valve member (which may include or is attached to the slider plate 50 per shown in Fig. 3). The locking member is mounted on the housing and has an external surface formation (in the form of fins 76 per shown in Figs. 2 and 4) that would be out of alignment with a part of the valve member (which may be slider plate) when the locking member is rotated to a first position (Fig. 2). At that position, the valve member is free to slide. The locking member is also rotatable to a second position (Fig. 4) whereby the surface formation is in alignment with a part of the valve member to thereby hinder the movement of the valve member. The instant invention valve therefore may be locked into place to prevent accidental or inadvertent movement of the valve member when such movement is not desirable.

"A claim is anticipated only if each and every element as set forth in the claim is found either expressly or inherently described in a single prior art reference. " ... "The identical invention must be shown in as complete detail as is contained in the ... claim." ...

The elements must be arranged as required by the claim, but this is not an *ipsissimis* verbis test, i.e., identity of terminology is not required. MPEP 2131.

Hanson (US 5,919,174) discloses a suction control valve 11 that, per shown in Fig. 1, comprises a first supply member 17 and a plunger assembly 27. The plunger assembly 27 has a valve element 45 (plunger stem) that has a channel 47 located between the seals 37 and 38, which are mounted to groove 39 and groove 40, respectively. A spring 31 biases against the stem end 48, so that in the normal closed condition, stem end 48 and O-ring seal 38 are positioned approximately at the plane 49 at the first supply member 17, thereby sealing the valve lumen 51 to prevent suction. When the actuator cap 15 to which the valve stem 45 is attached is pressed down along the direction D, the stem end 48 is moved into the well 53 of the supply member 17 so that channel 47 of the valve element 45 comes into registration with lumen 51 to allow suction along lumen 51 (column 4, lines 18-37 of Hanson).

Thus, in contrast to the claimed invention where there is an “unobstructed fluid flow” effected when the valve member is moved to the opened position, the Hanson valve member, by way of channel 47 of its plunger stem 45, presents an obstruction to the valve lumen 51. The fluid flow through lumen 51 of Hanson therefore is constrained. Accordingly, solid or sem-solid material that are sucked from the catheter may be collected in the region of channel 47 and be trapped thereat when the valve element is released to close. This may prevent the complete closing of the valve of the Hanson device. The instant invention valve has no such obstructions, as the valve member is brought to a side of the aperture (4) remote from the first bore (37), so that solid or semi-solid material are not being collected at the valve member to cause any potential problem that may result from such collection of materials sucked by the suction catheter.

As noted above, claim 24 also recites a rotatable locking member that has an outer surface formation that allows the valve member to freely slide when it is out of alignment with a part of the valve member and hinders the movement of the valve member when it is in alignment with the part of the valve member.

In contrast, Hanson utilizes rails 57 and stop plate 61 that are internal of cap 15 to regulate the movement of cap 15 in the direction D (column 4, lines 37-48). Thus, not only is actuator cap 15 not mounted to the housing, i.e., the supply member 17 of the Hanson

valve member, there is no “external surface formation” present in the actuator cap of Hanson that could be positioned in and out of alignment with a part of the valve member, as required in claim 24.

In view of the above, appellants submit that independent claim 24 is not anticipated by Hanson.

#### Dependent Claims

Appellants request the patentability of the following to be discussed dependent claims be adjudged separately from independent claim 24 from which they depend, either directly or indirectly.

In claim 4, the housing is defined to have a “tapered sealing formation” (40) that engages the valve member.

The examiner asserts that element 53 in the Hanson device is such tapered sealing formation. Yet element 53 in actuality defines a well that accepts stem end 48, when pressure is applied to actuator cap to push the plunger assembly downwards.

Claim 16 defines the housing (31 of the valve) to have two walls (48, 49) that extend longitudinally, and that the locking member (70) includes two projections (76) that form a continuation of the two walls when the locking member is in a position to enable movement of the valve member.

The Hanson valve does not disclose the claimed configuration of claim 16.

Claim 17 defines the housing (31) to have a sealing formation (for example elements 57, 39 and 40), and the locking member (70) being arranged to displace the valve member by a short distance toward the sealing formation when the locking member is moved to its locking position to thereby enhance the seal with the sealing formation.

No such arrangement is disclosed or suggested by the Hanson valve.

In view of the above, claims 4, 16 and 17 each are submitted not to be anticipated by Hanson.

**II. Obviousness rejection of claim 9 by the combination of Hanson and Decloux (US 5,320,328)**

Decloux discloses a very different form of valve from that of the present invention. In particular, the slide 34 of the Decloux valve is moved along two grooves 24 (Figs. 7, 8 and 9) so that the slide 34 may be curvedly moved into the path of bore 22 (column 4, lines 35-57). Moreover, venting is provided for the Decloux valve by means of vent channel 54 and vent bore 52, when slide 34 is moved into position to complete block through bore 22 (column 5, lines 26-55).

Thus, the combination of Hason and Decloux, if indeed such combination is feasible, nonetheless fails to disclose or suggest any housing that has "a channel extending along an outer surface" and the valve member including a plate member that is "slidably located in the channel", per required in claim 9. The rejection of claim 9 under the combination of Hanson Decloux therefore is submitted to be without merit and not sustainable.

**III. Obviousness rejection of claims 10 and 11 under the combination of Hanson, Decloux and Steigerwald (US 5,828,982)**

Claim 10 defines the housing of the instant invention valve to have two walls that define the channel wherealong the plate member (of the valve member) is arranged, so that the plate member is protected by the walls.

Claim 11 further defines the walls of claim 10 to have an upper surface that is curved such that the height of the wall is varied along the length of the valve.

Steigerwald shows an arrangement for preventing an inadvertent actuation but differs from the present invention in that it relates to an aerosol dispenser, not a suction catheter. Moreover, the manner in which the actuation is prevented is substantially different in that Steigerwald employs a slide that is pushed in along its length and is held in to enable actuation. Nothing in Steigerwald suggests a rotatable locking member of the kind required by claim 24 of the instant invention to which claims 10 and 11 depend indirectly.

In light of the above, appellants respectfully submit that claims 10 and 11 each are patentable over the combination of Hanson, Decloux and Steigerwald.

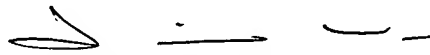
#### IV. Obviousness rejection of claim 18 in view Hanson

Appellant stipulates that claim 18 stands or falls with independent claim 24 to which it depends.

#### Summary

For the reasons stated above, all of the pending claims in the present invention are believed to be patentable over the cited references. Accordingly, the Board is respectfully requested to reverse the examiner's rejections.

Respectfully submitted,



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## **CLAIMS APPENDIX**

1. (Canceled)
2. A suction valve assembly according to Claim 24 including a spring, wherein said spring is arranged to urge said valve member to said second position.
3. A suction valve assembly according to Claim 2, wherein said spring is helical.
4. A suction valve assembly according to Claim 24, wherein said housing defines a tapered sealing formation, and wherein said valve member is arranged to engage said sealing formation in said second position.
5. (Canceled)
6. A suction valve assembly according to Claim 24, wherein said cylindrical sleeve has an outwardly- projecting annular flange arranged to make a wiping seal with a bore in said housing.
7. A suction valve assembly according to Claim 24, wherein said second bore is inclined at an angle relative to said first bore.
8. A suction valve assembly according to Claim 7, wherein said angle is substantially 45°.
9. A suction valve assembly according to Claim 24, wherein said housing has a channel extending along an outer surface, and wherein said valve member includes a plate member arranged for manual engagement and slidably located in said channel.
10. A suction valve assembly according to Claim 9, wherein said housing includes two walls, and wherein said channel extends between said two walls so that said plate member is protected by said walls.
11. A suction valve assembly according to Claim 10, wherein said walls have an upper surface that is curved such that the height of said walls varies along the length of the valve.
- 12-15. (Canceled)
16. A suction valve assembly according to Claim 24, wherein said housing has two walls extending longitudinally, and wherein said locking member includes two projections that form a continuation of said two walls when said locking member is in a position to enable movement of said valve member.



17. A suction valve assembly according to Claim 24, wherein said housing has a sealing formation, and wherein said locking member is arranged to displace said valve member by a short distance towards said sealing formation when said locking member is moved to its locking position, such as to enhance the seal with said sealing formation.

18. A suction valve assembly according to Claim 24, wherein said housing is of a transparent material.

19-23. (Canceled)

24. A suction catheter assembly comprising a suction catheter and a valve for controlling flow along said suction catheter, said valve comprising: a housing defining a first bore in communication with said suction catheter and a second bore extending to an outlet opening into said first bore through an aperture; a valve member, said valve member having a sealing surface and being slidable in alignment with said first bore from a first position where said sealing surface is on a side of said aperture remote from said first bore such as to allow unobstructed fluid flow from said suction catheter along the first bore to the second bore to a second position on an opposite side of said aperture to block flow of fluid from said suction catheter between said first and second bores, wherein said valve includes a rotatable locking member operable to prevent movement of said valve member, wherein said locking member is mounted on said housing and has an external surface formation, and wherein said locking member is rotatable between a first position in which said surface formation is out of alignment with a part of said valve member and said valve member is free for sliding movement to a second position where said surface formation is in alignment with said part of said valve member so as to hinder movement of said valve member.

25-26. (Canceled)

## EVIDENCE APPENDIX

None.

## **RELATED PROCEEDINGS APPENDIX**

None.